

Review of systems of classification

Natural system :-

The natural system of classification of organisms is according to a relationship based on descent from a common ancestor.

This system of classification avoids the grouping of heterogeneous and unrelated groups of organisms.

This system is based on all most all characters.

The first natural system of plant classification was given by Bentham and

Artificial classification:-

In this classification organisms are grouped on the basis of non-evolutionary features (e.g. the grouping together of plants according to the number and situation of their stamens, styles, and stigmas rather than their evolutionary relationships).

It is based on very few and easily observable characters.

e.g. Carl Linnaeus classification of Angiosperms.

Phylogenetic system :-

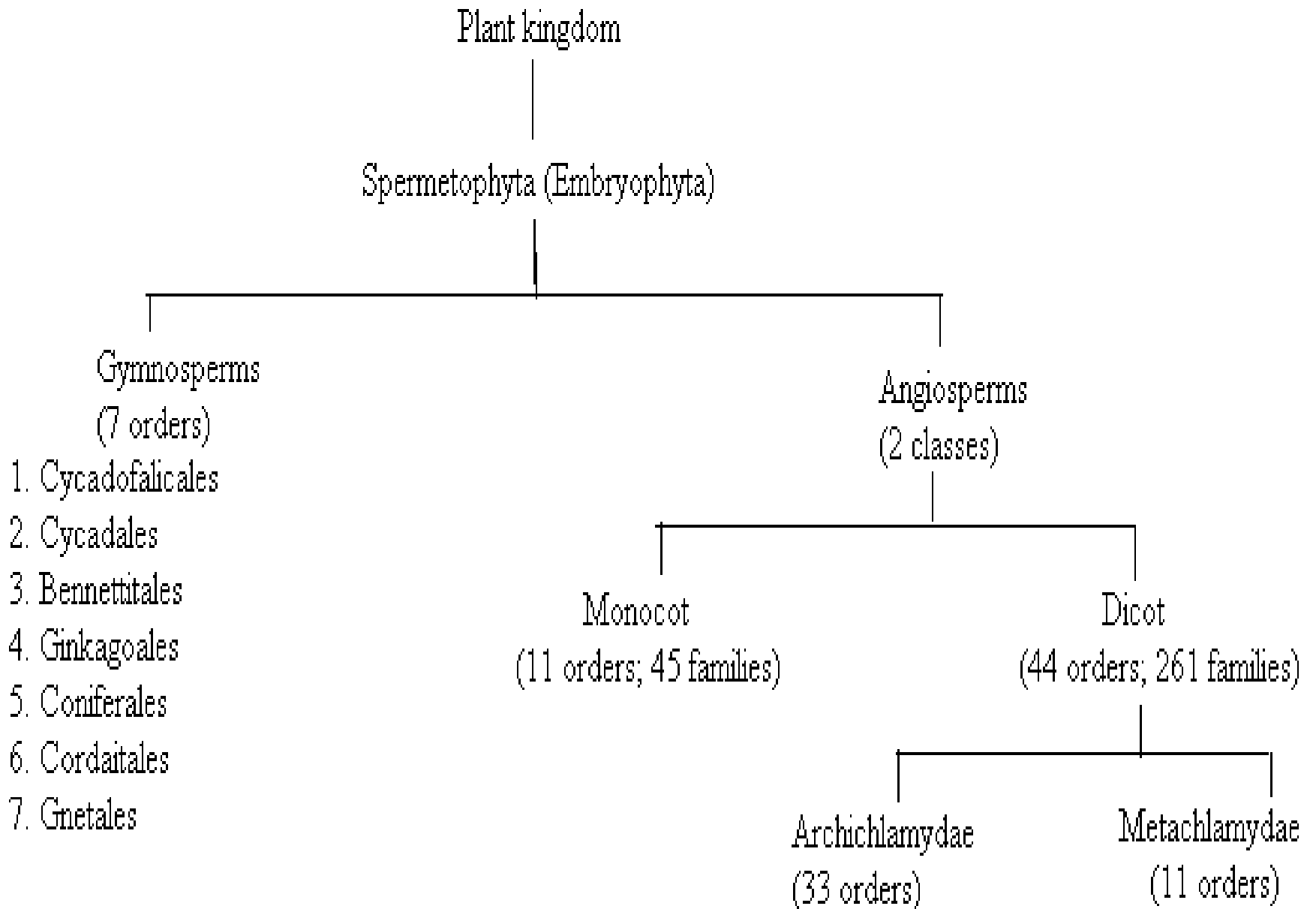
It shows how species may be related by descent from a common ancestor.

A classification of organisms on the basis of such relationships is called a phylogenetic classification.

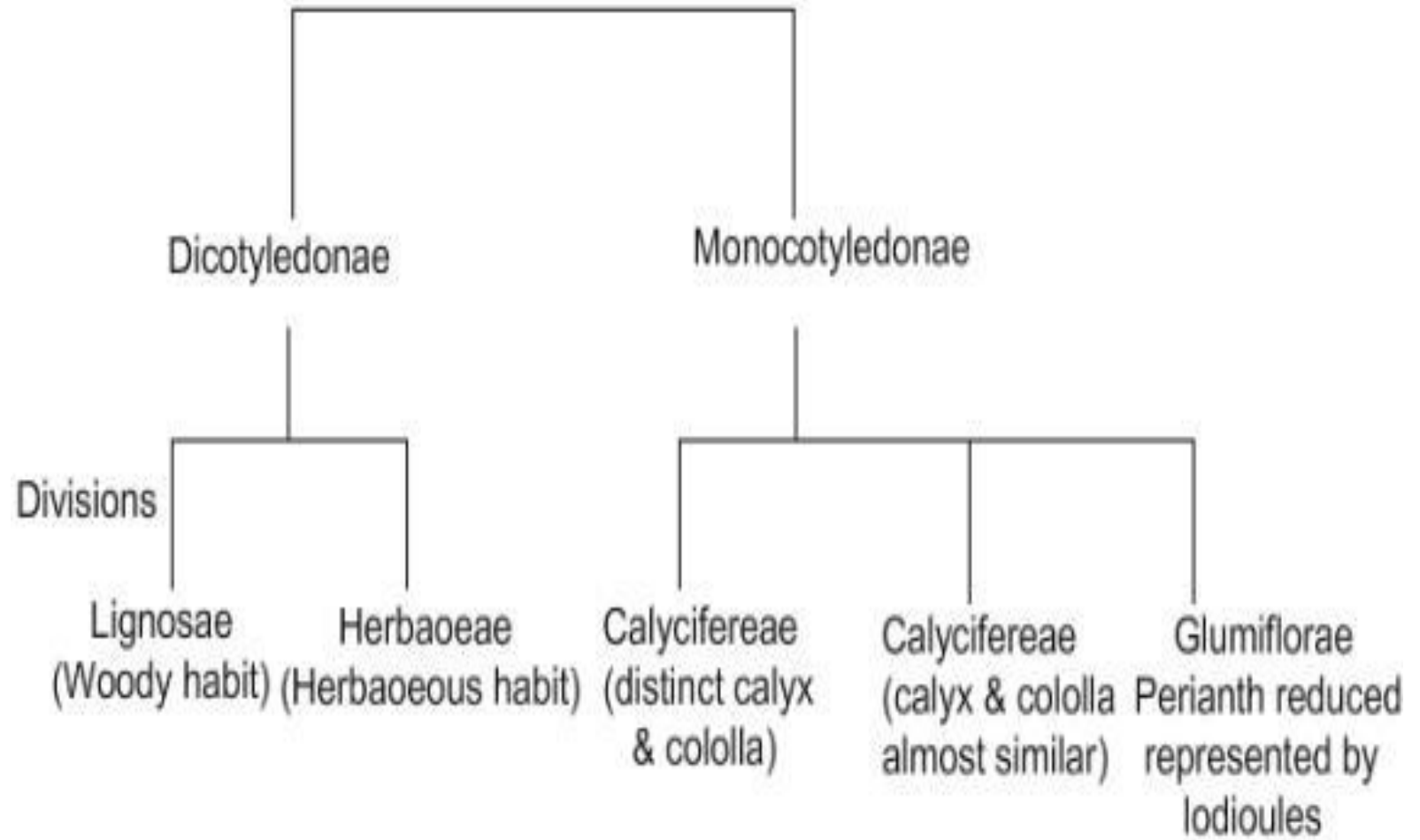
A phylogenetic classification involves placing organisms in a clade with their common ancestor.

This system is based on primitive and advance characters of an organism.

e.g. Engler and Prantle system of classification



Angiosperms



Principles and assumptions of Engler and Prantl's system:-

Engler and Prantl were German botanists who proposed this system

They considered monocot are more primitive than dicot.

Engler and Prantl's system was warmly adopted by American and European scientists.

According to Engler and Prantl:

The most primitive plants are wind pollinated and most advanced are insect pollinated.

Unisexual plants are more primitive than bisexual.

Bisexual flowers are highly advanced flower i.e. bisexual flowers originated from unisexual flower.

Free sepals, free petals, free stamen, and carpels are the signs of primitive plants; where united is the sign of advanced plants.

If calyxes are united it means that the plant is primitive

If calyx and corolla are united it means that plant is advanced whereas the union of all parts of flowers represents the most advanced stage.

From various groups of gymnosperms, angiosperms are evolved monocots and then dicots.

From angiosperms first evolved monocots and then dicots. It means that dicots are advanced whereas monocots are primitive. Engler united polypetalae and monochlamydeae into a separate group called Archichlamydeae in which dicot plants are included and in which the sepals and petals are free.

Metachlamydeae plants are evolved from Archichlamydeae. Female flowers evolve from megasporophyll and male from microsporophyll.

Monocots have been divided and classified into 11 orders, 45 families and dicots are divided into 44 orders and 261 families.

Merits:

The chief merit lies in the broad treatment of the entire plant kingdom.

It gives an excellent illustration and phylogenetic arrangement of many groups.

Joining up of Polypetlae and Monochlamydae into Archichlamydae

Archiaceae is placed at the end of dicots because they are slightly evolved.

Juncaceae, eridecae, Amaryllaceae, are placed close to Filiaceae.

Gymnsperms treated separately in this system.

This system is accepted all over the world.

Demerits:

The union of choropetalae and apetalae is important over that of Bentham and Hooker's system but in other respect not so. It is the system that far carry from the salix to buttercup.

Amentiferae and centrospermae are placed in the beginning of dicot even before Ranales.

The folia nature of carpel is settle to the primitiveness of cryopylaceae with two whorls of perianth.